Qual Preparation Session
Fall 2013

Presenter:
Jonathan Becker

Panelists:
Christian Koehler, Jon Smereka, June Zhang, Joseph Fernandez,
Stephen Siena, Tianyu Gu
The Qualifiers or RUN FOR YOUR LIVES!!

It’s not that bad, BUT you must take it seriously.

Remember: You’re not alone.
Motivation

Why are we doing this?

Help you prepare

• Presentation and Q&A
• Expectations

Give tips based on our experience

• We have been through this too

Give you an opportunity to ask questions
Overview

This presentation

• Purpose of the qualifying exam
• Preparing your slides
• Delivering your slides
• Surviving the Q&A session

Following: Ask question to EGO panel
PURPOSE OF THE QUAL

From phdcomics.com

Jorge Cham @The Stanford Daily
What is the Qual?

A model conference

• A technical topic
• Technically competent audience
• Paper
• Presentation
• Q&A

A demonstration of your knowledge and communication skills

• Fundamentals
• Vocabulary
What is the Qual not?

It is not defense of your original research
  • Not expected to be dissertation-level work
  • Only understanding is necessary

It is not a broad review of work
  • Technical focus is important

It is not a presentation to experts in your “specific” research
  • Do not assume your committee knows everything
What do they want to see?

Demonstrate **understanding** of research
- Understand strengths/weaknesses
- Relate to background papers

Know the **fundamentals** of your area
- Process is more important than the final answer

Ability to **communicate** with technical audience
- Stand up to scrutiny
- Committee wants to see how you react when someone is critical of your work
PREPARING YOUR SLIDES

From phdcomics.com
The Importance of Quality Slides

You are presenting your work & **yourself & your slides**

A good presentation requires preparation

Slide idea from Markus Püschel, ETH Zürich
Organization

How you arrange your content is crucial

Typical organization

- Motivation and problem statement
- Background and related work
- Contribution/Results
- Validation (Graphs)
- Conclusion

Use slide numbers
Motivation and Problem Statement

Explain your problem – make your committee care

• Your professors are engineers – problem solvers
• Professors may often have some interest in your work

From phdcomics.com
Contribution/Results

Distinguish your work from the background

• What is your main contribution/discovery?
• How does this relate to the motivation

Verify/illustrate results with visuals
Simple Guidelines

A few simple tips:

1) Try to convey one idea per slide
2) Use visuals (which add to the message)
3) Use words and equations sparingly

Slide idea from Markus Püschel, ETH Zürich
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Take Home Message

Convey a central message

- Tell them what you’re going to say (Motivation)
- Say it (Results/Contribution)
- Tell them what you said (Validation/Conclusions)

Use visuals and concepts when possible

Markus Püschel’s Small Guide to Giving Presentations

- Download and read this guide!
DELIVERING YOUR SLIDES

Q: HOW MANY PH.D.’S DOES IT TAKE TO GET A POWERPOINT PRESENTATION TO WORK?

ANSWER: (n+1)

WHERE n = THE NUMBER OF ACADEMICS IN THE ROOM WHO THINK THEY KNOW HOW TO FIX IT, AND I = THE PERSON WHO FINALLY CALLS THE A/V TECHNICIAN.
Delivering Your Slides

Most important tip: *Prepare and practice*

- Know what to say
- Time your presentation
- Be comfortable with your talk (i.e. practice)
- Have a “qual day” plan
Timing

Timing is very important

• You are allotted 30 minutes to talk
• However, design presentation for less than 25 minutes, you will be *interrupted* by the committee

Material vs. time

• If you are rushing to finish on time, you’re *cramming too much in*
• After the end of your talk, create a *supplemental section*
  • Extra material that may be useful in for question

Image: http://thinkgeek.com/homeoffice/lights/ac3f/
Practice Quals

Schedule at least two practice quals

• Invite your lab
• Invite students of committee members
• Invite your friends in other areas
• Attend other practice talks

Logistics

• General room reservations: http://www.cmu.edu/hub/spacequest/
• Talk to your wing admin about reserving a room in your wing
• Book the room for 90 minutes
• Bring food (and mention this in the invite email)
Qual Day

Dress

• Business casual
• You want to look professional
• Comfort is important

Bring note page handouts

• One copy for each committee member
• 3 slides per page
• Do not print supplementary slides
• Include page numbers
Qual Day

Additional tips

• Speak to your audience
• Use laser pointers sparingly (if at all)
  • Laser point jitter is distracting and makes you look nervous
• When interrupted, respond clearly and concisely
• Keep answers concise, there will be more time afterward

Some additional items

• Bring a bottle of water
• Check out your room beforehand to make sure it has markers, or bring your own
• Do not bring any food or “bribes” for the committee members
• Do bring three pens for committee members to write notes
Q&A SESSION

From phdcomics.com
What will they ask?

The committee wants to test your knowledge and your ability to communicate.

Any question about your submitted or presented material is fair game.

- Your three reference
- Your submitted paper
- Your presentation
Throughout the Q&A

Don’t Panic! Stay Calm!

Be respectful of the committee

- Do not argue with the committee
- If you believe them to be incorrect, calmly make your case

Handle Interruptions

- You must respond well to interruptions
- The faculty may guide you in a collaborative way
Answering Questions

Think out loud and talk through the problem

- Walk through problems step-by-step
- Even if you are wrong, you demonstrate your ability to approach a problem

Interact with the committee

- Ask questions if you do not understand the question
- Committee members may help you out

Remember: you are not expected to know everything

- The faculty want to find the boundaries of your ignorance.
Quick Tips

Before the qual:

1. Study! Brush up on your fundamentals.
2. Work problems on a whiteboard.
3. Know classic/typical problems in your field.
4. Study your presentation and paper. Know EVERY word. This is what you will get asked about.
5. Practice your presentation to friends and get feedback. Have them ask you questions and work them out on the whiteboard.
6. Confidence is the MOST important thing. Know what you did, and don’t get flustered.

After the qual:

1. Tell your advisor how it went (email them if they are out of town)
2. Forget about it!
3. Go home, relax, and don’t think about it.
Conclusions

Good Luck! Practice! Don’t procrastinate (too much)!

Now on to the questions!